SUBJECT INDEX TO VOLUME 34

Adaptation
  maladaptation, marginal population, mosquito fish, 65
  trophic differentiation, goodeid fish, 259
  photoperiodic response, milkweed bug, 356
  body size, flight, milkweed bug, 371
  cave animals, bioclimatic model, 394
  unpalatability, *Euphydryas*, 586
  coevolution, 611
Biochemical
  albumin evolution, marsupial frog, 222
  hemoglobin, duplicate loci, *Peromyscus*, 1077
  molecular clock, nonlinear, 1216
Book Reviews
  topics in plant population biology, 407
  phylogenetic mythogenesis and paleontology, 822
  optimization in evolution, 1031
  theory of population genetics and evolutionary ecology, 1032
  evolution in structured populations, 1034
  plant parenthood, 1222
  macroevolution, 1223
  evolution of mating preferences, 1226
Breeding System
  allozyme, wild rye, 117
  dioecy, angiosperm, 123
  sexual selection, dimorphism, snapping shrimp, 161
  sexual selection, pair bonding, soldier beetle, 174
  genetics, gynogenetic fish, 246
  multiple insemination, shiner perch, 271
  clutch size, parental survival, tree swallow, 278
  sexual dimorphism, selection, polygenic characters, 292
  sex ratio, sailfin molly, 308
  mate discrimination, *Drosophila* species and hybrids, 320
  mate recognition, 330
  mass flowering, pollination, *Hybanthus*, 475
  floral display, orchid, 489
  cold climate, pinniped, 494
  population size, tropical marine fish, 508
  mate choice, *Hylobitticus*, Mecoptera, 519
  parthenogenetic, clonal diversity, *Lonchoptera*, 539
  environmental determinants, *Impatiens*, 747
  sexual dimorphism, wild strawberry, 762
  pollinator foraging, gene dispersal, *Senecio*, 934
  floral parasitism, 944
  ecological constraints, seed plants, 959
  parental investment, mammal, 973
  outbreeding, mate selection, parasitoid wasp, 983
  sex ratio, body size, seasonality, solitary bee, 993
  breeding colors, threat display, reproductive success, stickleback, 1050
  clonal reproduction, *Poeciliopsis*, genetic linkage, 1105
  asymetric mating preference, *Drosophila*, 1116
  spatial distribution of sexes, dioecious lily, 1127
  dioecy, distyly, pollinator, 1138
  seed production, pollen vector, nectarless plants, 1144
Chromosome
  inversion, adaptive topography, grasshopper, 181
  centric fusions, hybrid zone, *Mus musculus*, 453
  morphological correlates, New World sparrow, 654
  sex chromosome polymorphism, platyfish, 663
  phenotypic effects of X-chromosome in hybrids, sulfur butterfly, 673
  X-chromosome inheritance, mate selection, hybridization, sulfur butterfly, 688
  enzyme variation, inversions, *Chironomus*, 696
  translocations, recombination, population structure, *Oenothera*, 923
Competition
  interspecific, phenotypic variation, tadpole, 40
  interspecific, island biogeography, 332
  interspecific, salamander, 409
  reproductively isolated strains, *Drosophila*, 445
  density dependent, density independent, extinction, salamander, 617
Demography
  oviposition, juvenile survival, host abundance, butterfly, 342
  variation, colonization, *Dysdercus*, 548
  geographic range, body size, mantis shrimp, 1019
  intraspecific litter size, *Microtus*, 1174
Enzyme Variation
  population biology, snail, 92
  macrogyne, microgyne, ant, 105
  central and marginal populations, wild barley, 110
  trophic resource stability, oyster, 204
  interspecific, amylase, *Drosophila*, 209
  population, *Desmodium*, 214
  ascorbic acid biosynthesis, monotremes and marsupials, 230
  geographic variation, milkfish, 558
  selection, amylase, *Drosophila*, 608, 868
  Pacific and Caribbean fishes, molecular clock, 705
  Drosophila subobscura, Canary Islands, 875
  evolutionary relationships, penaeid prawns, 904
  Scandinavian moose, 1037
  species complex, ants, 1060
  correlation with habitat, grass shrimp, 1099
Evolution
  host plant specific yeast, speciation, 137
  host plant adaptation, *Enchenopa*, 147
  food preferences, *Drosophila*, 1009
  venom delivery, snake, 1194
Gene Flow
  population size, genetic variance, bird, 789
Homeostasis
  varying environments, experimental, 1219
Hybridization
  systematics, horseshoe crab, 712
  interspecific, origin of gynogenetic fish, 917
Isolation
  sexual, populations, *Drosophila*, 421
  sexual, speciation, 437
  reproductive, milkweed, 738
Mimicry
  floral, orchid, 135
  of male by female flowers, *Jacaratia*, 467

SUBJECT INDEX TO VOLUME 34

Adaptation
  maladaptation, marginal population, mosquito fish, 65
  trophic differentiation, goodeid fish, 259
  photoperiodic response, milkweed bug, 356
  body size, flight, milkweed bug, 371
  cave animals, bioclimatic model, 394
  unpalatability, *Euphydryas*, 586
  coevolution, 611
Biochemical
  albumin evolution, marsupial frog, 222
  hemoglobin, duplicate loci, *Peromyscus*, 1077
  molecular clock, nonlinear, 1216
Book Reviews
  topics in plant population biology, 407
  phylogenetic mythogenesis and paleontology, 822
  optimization in evolution, 1031
  theory of population genetics and evolutionary ecology, 1032
  evolution in structured populations, 1034
  plant parenthood, 1222
  macroevolution, 1223
  evolution of mating preferences, 1226
Breeding System
  allozyme, wild rye, 117
  dioecy, angiosperm, 123
  sexual selection, dimorphism, snapping shrimp, 161
  sexual selection, pair bonding, soldier beetle, 174
  genetics, gynogenetic fish, 246
  multiple insemination, shiner perch, 271
  clutch size, parental survival, tree swallow, 278
  sexual dimorphism, selection, polygenic characters, 292
  sex ratio, sailfin molly, 308
  mate discrimination, *Drosophila* species and hybrids, 320
  mate recognition, 330
  mass flowering, pollination, *Hybanthus*, 475
  floral display, orchid, 489
  cold climate, pinniped, 494
  population size, tropical marine fish, 508
  mate choice, *Hylobitticus*, Mecoptera, 519
  parthenogenetic, clonal diversity, *Lonchoptera*, 539
  environmental determinants, *Impatiens*, 747
  sexual dimorphism, wild strawberry, 762
  pollinator foraging, gene dispersal, *Senecio*, 934
  floral parasitism, 944
  ecological constraints, seed plants, 959
  parental investment, mammal, 973
  outbreeding, mate selection, parasitoid wasp, 983
  sex ratio, body size, seasonality, solitary bee, 993
  breeding colors, threat display, reproductive success, stickleback, 1050
  clonal reproduction, *Poeciliopsis*, genetic linkage, 1105
  asymetric mating preference, *Drosophila*, 1116
  spatial distribution of sexes, dioecious lily, 1127
  dioecy, distyly, pollinator, 1138
  seed production, pollen vector, nectarless plants, 1144
Chromosome
  inversion, adaptive topography, grasshopper, 181
  centric fusions, hybrid zone, *Mus musculus*, 453
  morphological correlates, New World sparrow, 654
  sex chromosome polymorphism, platyfish, 663
  phenotypic effects of X-chromosome in hybrids, sulfur butterfly, 673
  X-chromosome inheritance, mate selection, hybridization, sulfur butterfly, 688
  enzyme variation, inversions, *Chironomus*, 696
  translocations, recombination, population structure, *Oenothera*, 923
Competition
  interspecific, phenotypic variation, tadpole, 40
  interspecific, island biogeography, 332
  interspecific, salamander, 409
  reproductively isolated strains, *Drosophila*, 445
  density dependent, density independent, extinction, salamander, 617
Demography
  oviposition, juvenile survival, host abundance, butterfly, 342
  variation, colonization, *Dysdercus*, 548
  geographic range, body size, mantis shrimp, 1019
  intraspecific litter size, *Microtus*, 1174
Enzyme Variation
  population biology, snail, 92
  macrogyne, microgyne, ant, 105
  central and marginal populations, wild barley, 110
  trophic resource stability, oyster, 204
  interspecific, amylase, *Drosophila*, 209
  population, *Desmodium*, 214
  ascorbic acid biosynthesis, monotremes and marsupials, 230
  geographic variation, milkfish, 558
  selection, amylase, *Drosophila*, 608, 868
  Pacific and Caribbean fishes, molecular clock, 705
  Drosophila subobscura, Canary Islands, 875
  evolutionary relationships, penaeid prawns, 904
  Scandinavian moose, 1037
  species complex, ants, 1060
  correlation with habitat, grass shrimp, 1099
Evolution
  host plant specific yeast, speciation, 137
  host plant adaptation, *Enchenopa*, 147
  food preferences, *Drosophila*, 1009
  venom delivery, snake, 1194
Gene Flow
  population size, genetic variance, bird, 789
Homeostasis
  varying environments, experimental, 1219
Hybridization
  systematics, horseshoe crab, 712
  interspecific, origin of gynogenetic fish, 917
Isolation
  sexual, populations, *Drosophila*, 421
  sexual, speciation, 437
  reproductive, milkweed, 738
Mimicry
  floral, orchid, 135
  of male by female flowers, *Jacaratia*, 467

synchrony versus temporal sympatry, 614
color patterns, bumblebee, 622
painted moths, bird predation, 1205
opinions, Batesian, Müllerian, 1213
Morphological Variation
paedomorphosis, molecular evolution, salamander, 1
ovum size, fitness, clutch size, salamander, 51
color morphs, genetics, serranid fish, 240
brain size, bat, 386
New Zealand house sparrow, 638
geographic, phylogeny, environment, pocket mouse, 888
heritable, song sparrow, 1155
size and shape, genetics, rats, 1161
Population Biology
caste ratios, environment, ant, 575
r and K selection, *Drosophila*, 1184
Selection
mortality, reproduction, *Bufo*, 18
color pattern, *Poecilia*, 76
competitive ability, *Drosophila*, 431
heterozygote advantage, *Plectritus*, 601
frequency dependent overdominance, hermaphrodite plant, 769
neutral locus, self incompatability locus, balanced lethal, 779
group, population size, *Tribolium*, 799, 813
genic, organismic, 825
kin selection, experimental, 844
overdominance, growth rate, oyster, 856
predation, gray jay, 1004
Speciation
modes, genetic distance, 719
population cage, *Drosophila*, 730
Species Diversity
latitude, mammal, 193

INDEX

UMI

EVOLUTION

INTERNATIONAL JOURNAL OF ORGANIC EVOLUTION

Volume XXXIV, 1980

DAVID B. WAKE
Editor

WILLIAM L. BLOOM
Managing Editor

Published Bimonthly
At Allen Press, Inc., Lawrence, Kansas 66044
By the
Society for the Study of Evolution

CONTENTS OF VOLUME 34

ABBOTT, I. (see Grant, P. R.) 332
ALAHIOTIS, S. N. (see Kilias, G.) 730
ALDEN, BETH M. (see Dingle, Hugh) 356
ANDJELKOVIĆ, MARKO. (see Powell, Jeffrey R.) 209
ATCHLEY, WILLIAM R. AND J. J. RUTLEDGE. Genetic components of size and shape. I. Dynamics of components of phenotypic variability and covariability during ontogeny in the laboratory rat. 1161
AUGSPURGER, CAROL K. Mass-flowering of a tropical shrub (*Hybanthus prunifolius*): influence on pollinator attraction and movement. 475
BABA, MARIETTA. (see Corruccini, Robert S.) 1216
BABBLE, GARY R. (see Schumaker, Kathy M.) 110
BAKER, ALLAN J. Morphometric differentiation in New Zealand populations of the house sparrow (*Passer domesticus*). 638
BALSANO, JOSEPH S. (see Turner, Bruce J.) 246
BARON, GEORG AND PIERRE JOLICOEUR. Brain structure in Chiroptera: some multivariate trends. 386
BARROWCLOUGH, GEORGE F. Gene flow, effective population sizes, and genetic variance components in birds. 789
BAWA, K. S. Mimicry of male by female flowers and intrasexual competition for pollinators in *Jacaratia dolichaula* (D. Smith) Woodson (Caricaceae). ... 467
BAWA, K. S. (see Beach, J. H.) 1138
BEACH, J. H. AND K. S. BAWA. Role of pollinators in the evolution of dioecy from distyly. 1138
BIRNEY, ELMER C., ROBERT JENNESS, AND IAN D. HUME. Evolution of an enzyme system: ascorbic acid biosynthesis in monotremes and marsupials. 230
BLAKLEY, NIGEL R. (see Dingle, Hugh) 356
BLAKLEY, NIGEL R. (see Dingle, Hugh) 371
BOWERS, M. DEANE. Unpalatability as a defense strategy of *Euphydryas phaeton* (Lepidoptera: Nymphalidae). 586
BOYCE, MARK S. (see Zeveloff, Samuel I.) 973
BOYDEN, THOMAS C. Floral mimicry by *Epidendrum ibaguense* (Orchidaceae) in Panama. 135
BRETT, BETTY-LOU H. (see Turner, Bruce J.) 246
BRETT, BETTY-LOU H. (see Turner, Bruce J.) 917
BRINGHURST, R. S. (see Hancock, J. F., Jr.) 762
BRUSSARD, PETER F. (see McCracken, Gary F.) 92
BUROKER, NORMAN E. An examination of the trophic resource stability theory using oyster species of the family Ostreidae. 204
BURTON, SUSAN. (see Grant, Bruce) 983
CABRERA, V. M., A. M. GONZÁLEZ, AND A. GULLÓN. Enzymatic polymorphism in *Drosophila subobscura* populations from the Canary Islands. 875
CAREY, KEN AND FRED R. GANDERS. Heterozygote advantage at the fruit wing locus in *Plectritis congesta* (Valerianaceae). 601
CHENEY, J. (see Colgan, D. J.) 181
CHILD, ANTHONY R. (see Pearson, Barrie) 105
CIOCHON, RUSSELL L. (see Corruccini, Robert S.) 1216
COLGAN, D. J. AND J. CHENEY. The inversion polymorphism of *Keyacris scurra* and the adaptive topography. 181

CONDRA, CINDRA. (see Taylor, Charles E.) 1183
CONNOR, EDWARD F. (see McCoy, Earl D.) 193
CONTOREGGI, CHARLES. (see Grant, Bruce) 983
CORRUCCINI, ROBERT S., MARIETTA BABA, MORRIS GOODMAN, RUSSELL L. CIOCHON, AND JOHN E. CRONIN. Non-linear macromolecular evolution and the molecular clock. 1216
CRISTALDI, MAURO. (see Spirito, Franco) 453
CRONIN, JOHN E. (see Corruccini, Robert S.) 1216
DARLING, JOAN D. S., MARTHA L. NOBLE, AND EVELYN SHAW. Reproductive strategies in the surfperches. I. Multiple insemination in natural populations of the shiner perch. *Cymatogaster aggregata*. 271
D'ENTREMONT, C. J. (see Zouros, E.) 421
DE JONG, G. (see Sharloo, W.) 608
DERR, JANICE A. The nature of variation in life history characters of *Dysdercus bimaculatus* (Heteroptera: Pyrrhocoridae), a colonizing species. 548
DE STEVEN, DIANE. Clutch size, breeding success, and parental survival in the Tree Swallow (*Iridoprocne bicolor*). 278
DHONDT, ANDRÉ A. (see Smith, James N. M.) 1155
DINGLE, HUGH, BETH M. ALDEN, NIGEL R. BLAKLEY, DIANNE KOPEC, AND ELIZABETH RUTH MILLER. Variation in photoperiodic response within and among species of milkweed bugs (*Oncopeltus*). 356
DINGLE, HUGH, NIGEL R. BLAKLEY, AND ELIZABETH RUTH MILLER. Variation in body size and flight performance in milkweed bugs (*Oncopeltus*). 371
DOANE, WINIFRED W. Selection for amylase allozymes in *Drosophila melanogaster*: some questions. 868
DUELLMAN, WILLIAM E. (see Scanlan, Brian E.) 222
EHRMAN, LEE. (see Pruzan-Hotchkiss, Anita) 445
ELLSTRAND, NORMAN C. AND DONALD A. LEVIN. Recombination system and population structure in *Oenothera*. 923
ENDLER, JOHN A. Natural selection on color patterns in *Poecilia reticulata*. 76
FEDERICI, ROBERTO. (see Spirito, Franco) 453
FULLER, BELINDA AND L. JAMES LESTER. Correlations of allozymic variation with habitat parameters using the grass shrimp, *Palaemonetes pugio*. 1099
GANDERS, FRED R. (see Carey, Ken) 601
GHISELIN, MICHAEL T. Phylogenetic mythogenesis and paleontology. (review) 822
GIVNISH, THOMAS J. Ecological constraints on the evolution of breeding systems in seed plants: dioecy and dispersal in gymnosperms. 959
GONZÁLEZ, A. M. (see Cabrera, V. M.) 875
GOODMAN, MORRIS. (see Corruccini, Robert S.) 1216
GORMAN, GEORGE C. (see Vawter, A. Thomas) 705
GRANT, BRUCE, SUSAN BURTON, CHARLES CONTOREGGI, AND MITCHELL ROTHSTEIN. Outbreeding via frequency-dependent mate selection in the parasitoid wasp, *Nasonia* (=*Mormoniella*) *vitripennis* Walker. 983
GRANT, P. R. AND I. ABBOTT. Interspecific competition, island biogeography and null hypotheses. 332
GRAVES, JOHN E. AND RICHARD H. ROSENBLATT. Genetic relationships of the color morphs of the serranid fish *Hypoplectrus unicolor*. 240
GROSSE, DANIEL J. (see Turner, Bruce J.) 259

GRULA, JOHN W. AND ORLEY R. TAYLOR, JR. Some characteristics of hybrids derived from the sulfur butterflies, *Colias eurytheme* and *C. philodice*: phenotypic effects of the X-chromosome. 673
GRULA, JOHN W. AND ORLEY R. TAYLOR, JR. The effect of X-chromosome inheritance on mate-selection behavior in the sulfur butterflies, *Colias eurytheme* and *C. philodice*. 688
GULLÓN, A. (see Cabrera, V. M.) 875
HAGEN, D. W., G. E. E. MOODIE, AND P. F. MOODIE. Polymorphism for breeding colors in *Gasterosteus aculeatus* II. Reproductive success as a result of convergence for threat display. 1050
HAIRSTON, NELSON G. Evolution under interspecific competition: field experiments on terrestrial salamanders. 409
HAMRICK, J. L. (see Sanders, Thomas B.) 117
HANCOCK, J. F., JR. AND R. S. BRINGHURST. Sexual dimorphism in the strawberry *Fragaria chiloensis*. 762
HAYWORTH, ANITA M. (see Melampy, Michael N.) 1144
HEISER, CHARLES B., JR. (see Kephart, Susan R.) 738
HERBERS, JOAN M. On caste ratios in ant colonies: population responses to changing environments. 575
HILBURN, LARRY R. Population genetics of *Chironomus stigmaterus* Say (Diptera: Chironomidae). II. Protein variability in populations of the southwestern United States. 696
HOFFMAN, STEVEN G. (see Warner, Robert R.) 508
HOTCHKISS, FREDERICK H. C. (see Pruzan-Hotchkiss, Anita) 445
HOWARTH, FRANCIS G. The zoogeography of specialized cave animals: a bioclimatic model. 394
HUHEEY, JAMES E. The question of synchrony or "temporal sympatry" in mimicry. 614
HUHEEY, JAMES E. Batesian and Müllerian mimicry: semantic and substantive differences of opinion. 1212
HUME, IAN D. (see Birney, Elmer C.) 230
JAEGER, ROBERT G. Density-dependent and density-independent causes of extinction of a salamander population. 617
JANZEN, DANIEL H. When is it coevolution? 611
JEFFORDS, M. R., G. P. WALDBAUER, AND J. G. STERNBURG. Determination of the time of day at which diurnal moths painted to resemble butterflies are attacked by birds. 1205
JENNESS, ROBERT. (see Birney, Elmer C.) 230
JOHNSTON, ROSS. (see Orzack, Steven Hecht) 663
JOLICOEUR, PIERRE. (see Baron, Georg) 386
KALLMAN, KLAUS D. (see Orzack, Steven Hecht) 663
KANESHIRO, KENNETH Y. Sexual isolation, speciation and the direction of evolution. 437
KAPLAN, ROBERT H. The implications of ovum size variability for offspring fitness and clutch size within several populations of salamanders (*Ambystoma*). 51
KEPHART, SUSAN R. AND CHARLES B. HEISER, JR. Reproductive isolation in *Asclepias*: lock and key hypothesis reconsidered. 738
KILIAS, G., S. N. ALAHIOTIS, AND M. PELECANOS. A multifactorial genetic investigation of speciation theory using *Drosophila melanogaster*. 730
KIMURA, MASAHITO T. Evolution of food preferences in fungus-feeding *Drosophila*: an ecological study. 1009

KINSMAN, SHARON. (see McDade, Lucinda A.) 944
KIRCHER, HENRY W. (see Starmer, William T.) 137
KNOWLTON, NANCY. Sexual selection and dimorphism in two demes of a symbiotic, pair-bonding snapping shrimp. 161
KOEPFER, H. R. (see Wasserman, M.) 1116
KOPEC, DIANNE. (see Dingle, Hugh) 356
KROHNE, DAVID T. Intraspecific litter size variation in *Microtus californicus*. II. Variation between populations. 1174
LANDE, RUSSELL. Sexual dimorphism, sexual selection, and adaptation in polygenic characters. 292
LARSON, ALLAN. Paedomorphosis in relation to rates of morphological and molecular evolution in the salamander *Aneides flavipunctatus* (Amphibia, Plethodontidae). 1
LATTER, B. D. H. (see Mulley, J. C.) 904
LESLIE, JAMES F. AND ROBERT C. VRIJENHOEK. Consideration of Muller's ratchet mechanism through studies of genetic linkage and genomic compatibilities in clonally reproducing *Poeciliopsis*. 1105
LESTER, L. JAMES. (see Fuller, Belinda) 1099
LEVIN, DONALD A. (see Ellstrand, Norman C.) 923
LEVIN, SIMON A. (see Orzack, Steven Hecht) 663
LLOYD, DAVID G. The distributions of gender in four angiosperm species illustrating two evolutionary pathways to dioecy. 123
MACKAY, TRUDY F. C. Genetic variance, fitness, and homeostasis in varying environments: an experimental check of the theory. 1219
MASON, LARRY G. Sexual selection and the evolution of pair-bonding in soldier beetles. 174
MAXSON, LINDA R. (see Scanlan, Brian E.) 222
MCCAULEY, DAVID E. (see Wade, Michael J.) 799
MCCAULEY, DAVID E. AND MICHAEL J. WADE. Group selection: the genetic and demographic basis for the phenotypic differentiation of small populations of *Tribolium castaneum*. 813
MCCOY, EARL D. AND EDWARD F. CONNOR. Latitudinal gradients in the species diversity of North American mammals. 193
MCCRACKEN, GARY F. AND PETER F. BRUSSARD. The population biology of the white-lipped land snail, *Triodopsis albolabris*: genetic variability. 92
MCDADE, LUCINDA A. AND SHARON KINSMAN. The impact of floral parasitism in two neotropical hummingbird-pollinated plant species. 944
MCNAUGHTON, S. J. Topics in plant population biology. (review) 407
MEAGHER, THOMAS R. Population biology of *Chamaelirium luteum*, a dioecious lily. I. Spatial distributions of males and females. 1127
MELAMPY, MICHAEL N. AND ANITA M. HAYWORTH. Seed production and pollen vectors in several nectarless plants. 1144
MICHOD, RICHARD E. Evolution in structured populations. (review) 1034
MILES, HEATHER. (see Zouros, E.) 856
MILLER, ELIZABETH RUTH. (see Dingle, Hugh) 356
MILLER, ELIZABETH RUTH. (see Dingle, Hugh) 371
MILLER, ROBERT R. (see Turner, Bruce J.) 917
MODESTI, ANTONELLA. (see Spirito, Franco) 453
MOODIE, G. E. E. (see Hagen, D. W.) 1050
MOODIE, P. F. (see Hagen, D. W.) 1050
MULLEY, J. C. AND B. D. H. LATTER. Genetic variation and evolutionary relationships within a group of thirteen species of penaeid prawns. 904

NIKLASSON, MONICA. (see Ochman, Howard) 539
NOBLE, MARTHA L. (see Darling, Joan D. S.) 271
NYGRÉN, KAARLO. (see Ryman, Nils) 1037
NYGRÉN, TUIRE. (see Ryman, Nils) 1037
OCHMAN, HOWARD, BO STILLE, MONICA NIKLASSON, ROBERT K. SELANDER, AND ALAN R. TEMPLETON. Evolution of clonal diversity in the parthenogenetic fly *Lonchoptera dubia*. 539
ORNDUFF, ROBERT. Plant parenthood. (review) 1222
ORZACK, STEVEN HECHT, JOEL J. SOHN, KLAUS D. KALLMAN, SIMON A. LEVIN, AND ROSS JOHNSTON. Maintenance of the three sex chromosome polymorphism in the platyfish, *Xiphophorus maculatus*. 663
OWEN, ROBIN E. (see Plowright, R. C.) 622
PATERSON, HUGH E. A comment on "mate recognition systems." 330
PATTON, JAMES L. (see Straney, Donald O.) 888
PEARSON, BARRIE AND ANTHONY R. CHILD. The distribution of an esterase polymorphism in macrogynes and microgynes of *Myrmica rubra* Latreille. 105
PELECANOS, M. (see Kilias, G.) 730
PERELLE, IRA B. (see Pruzan-Hotchkiss, Anita) 445
PERTICONE, PAOLO. (see Spirito, Franco) 453
PHAFF, HERMAN J. (see Starmer, William T.) 137
PIEROTTI, DAVID. (see Pierotti, Raymond) 494
PIEROTTI, RAYMOND AND DAVID PIEROTTI. Effects of cold climate on the evolution of pinniped breeding systems. 494
PLOWRIGHT, R. C. AND ROBIN E. OWEN. The evolutionary significance of bumble bee color patterns: a mimetic interpretation. 622
POWELL, JEFFREY R., MARTA RICO, AND MARKO ANDJELKOVIĆ. Population genetics of *Drosophila* amylase III. Interspecific variation. 209
PRUZAN-HOTCHKISS, ANITA, IRA B. PERELLE, FREDERICK H. C. HOTCHKISS, AND LEE EHRMAN. Altered competition between two reproductively isolated strains of *Drosophila melanogaster*. 445
RASCH, ELLEN M. (see Turner, Bruce J.) 246
RAUSHER, MARK D. Host abundance, juvenile survival, and oviposition preference in *Battus philenor*. 342
REAKA, MARJORIE L. Geographic range, life history patterns, and body size in a guild of coral-dwelling mantis shrimps. 1019
REUTERWALL, CHRISTINA. (see Ryman, Nils) 1037
RICO, MARTA. (see Powell, Jeffrey R.) 209
RINGO, JOHN M. (see Wood, David) 320
RISING, JAMES D. AND GERALD F. SHIELDS. Chromosomal and morphological correlates in two New World sparrows (Emberizidae). 654
RIZZONI, MARCO. (see Spirito, Franco) 453
ROSENBLATT, RICHARD. (see Vawter, A. Thomas) 705
ROSENBLATT, RICHARD H. (see Graves, John E.) 240
ROSS, M. D. Components of fitness and frequency-dependent overdominance in hermaphrodite plants. 769
ROTHSTEIN, MITCHELL. (see Grant, Bruce) 983
RUTLEDGE, J. J. (see Atchley, William R.) 1161
RYMAN, NILS, CHRISTINA REUTERWALL, KAARLO NYGRÉN, AND TUIRE NYGRÉN. Genetic variation and differentiation in Scandinavian moose (*Alces alces*): are large mammals monomorphic? 1037
SAGE, RICHARD D. (see Stearns, Stephen C.) 65

SAMALLOW, PAUL B. Selective mortality and reproduction in a natural population of *Bufo boreas*. 18
SANDERS, THOMAS B. AND J. L. HAMRICK. Variation in the breeding system of *Elymus canadensis*. 117
SAVITZKY, ALAN H. The role of venom delivery strategies in snake evolution. 1194
SCANLAN, BRIAN E., LINDA R. MAXSON, AND WILLIAM E. DUELLMAN. Albumin evolution in marsupial frogs (Hylidae: Gastrotheca). 222
SCHAAL, BARBARA A. AND WILLIAM G. SMITH. The apportionment of genetic variation within and among populations of *Desmodium nudiflorum*. 214
SCHARLOO, W. AND G. DE JONG. Selection for amylase allozymes in *Drosophila melanogaster*: a reply. 608
SCHEMSKE, DOUGLAS W. Evolution of floral display in the orchid *Brassavola nodosa*. 489
SCHMITT, JOHANNA. Pollinator foraging behavior and gene dispersal in *Senecio* (Compositae). 934
SEKIGUCHI, KOICHI AND HIROAKI SUGITA. Systematics and hybridization in the four living species of horseshoe crabs. 712
SELANDER, ROBERT K. (see Ochman, Howard) 539
SHAW, EVELYN. (see Darling, Joan D. S.) 271
SHIELDS, GERALD F. (see Rising, James D.) 654
SHUMAKER, KATHY M. AND GARY R. BABBLE. Patterns of allozymic similarity in ecologically central and marginal populations of *Hordeum jubatum* in Utah. 110
SINGH, SHIVA M. (see Zouros, E.) 856
SLATKIN, MONTGOMERY. Optimization in evolution. (review) 1031
SMITH, JAMES N. M. AND ANDRÉ A. DHONDT. Experimental confirmation of heritable morphological variation in a natural population of song sparrows. 1155
SMITH, WILLIAM G. (see Schaal, Barbara A.) 214
SNELSON, FRANKLIN F., JR. AND JEFFREY D. WETHERINGTON. Sex ratio in the sailfin molly, *Poecilia latipinna*. 308
SNYDER, LEE R. G. Closely linked alpha-chain hemoglobin loci in *Peromyscus* and other animals: speculations on the evolution of duplicate loci. 1077
SOHN, JOEL J. (see Orzack, Steven Hecht) 663
SPIESS, ELIOT B. Evolution of mating preferences. (review) 1226
SPIRITO, FRANCO, ANTONELLA MODESTI, PAOLO PERTICONE, MAURO CRISTALDI, ROBERTO FEDERICI, AND MARCO RIZZONI. Mechanisms of fixation and accumulation of centric fusions in natural populations of *Mus musculus* L. I. Karyological analysis of a hybrid zone between two populations in the central Apennines. 453
STARMER, WILLIAM T., HENRY W. KIRCHER, AND HERMAN J. PHAFF. Evolution and speciation of host plant specific yeasts. 137
STEARNS, STEPHEN C. AND RICHARD D. SAGE. Maladaptation in a marginal population of the mosquito fish, *Gambusia affinis*. 65
STERNBURG, J. G. (see Jeffords, M. R.) 1205
STILLE, BO. (see Ochman, Howard) 539
STRANEY, DONALD O. AND JAMES L. PATTON. Phylogenetic and environmental determinants of geographic variation of the pocket mouse *Perognathus goldmani* Osgood. 888

STROBECK, CURTIS. Heterozygosity of a neutral locus linked to a self-incompatibility locus or a balanced lethal. 779
SUGITA, HIROAKI. (see Sekiguchi, Koichi) 712
SULZBACH, D. S. Selection for competitive ability: negative results in *Drosophila*. 431
TAYLOR, CHARLES E. AND CINDRA CONDRA. *r*- and *K*-selection in *Drosophila pseudoobscura*. 1183
TAYLOR, ORLEY R., JR. (see Grula, John W.) 673
TAYLOR, ORLEY R., JR. (see Grula, John W.) 688
TEMPLETON, ALAN R. Modes of speciation and inferences based on genetic distances. 719
TEMPLETON, ALAN R. Macroevolution. (review) 1223
TEMPLETON, ALAN R. (see Ochman, Howard) 539
TEPEDINO, V. J. (see Torchia, P. F.) 993
THORNHILL, RANDY. Mate choice in *Hylobittacus apicalis* (Insecta: Mecoptera) and its relation to some models of female choice. 519
TORCHIO, P. F. AND V. J. TEPEDINO. Sex ratio, body size and seasonality in a solitary bee, *Osmia lignaria propinqua* Cresson (Hymenoptera: Megachilidae). 993
TORDOFF, WALTER, III. Selective predation of gray jays, *Perisoreus canadensis*, upon boreal chorus frogs, *Pseudacris triseriata*. 1004
TRAVIS, JOSEPH. Phenotypic variation and the outcome of interspecific competition in hylid tadpoles. 40
TRAVIS, JOSEPH. (see Wilbur, Henry M.) (review) 1032
TURNER, BRUCE J., BETTY-LOU H. BRETT, ELLEN M. RASCH, AND JOSEPH S. BALSANO. Evolutionary genetics of a gynogenetic fish, *Poecilia formosa*, the Amazon molly. 246
TURNER, BRUCE J., BETTY-LOU H. BRETT, AND ROBERT R. MILLER. Interspecific hybridization and the evolutionary origin of a gynogenetic fish, *Poecilia formosa*. 917
TURNER, BRUCE J. AND DANIEL J. GROSSE. Trophic differentiation in *Ilyodon*, a genus of stream-dwelling goodeid fishes: speciation versus ecological polymorphism. 259
VAWTER, A. THOMAS, RICHARD ROSENBLATT, AND GEORGE C. GORMAN. Genetic divergence among fishes of the Eastern Pacific and the Caribbean: support for the molecular clock. 705
VRIJENHOEK, ROBERT C. (see Leslie, James F.) 1105
WADE, MICHAEL J. AND DAVID E. MCCAULEY. Group selection: the phenotypic and genotypic differentiation of small populations. 799
WADE, MICHAEL J. (see McCauley, David E.) 813
WADE, MICHAEL J. An experimental study of kin selection. 844
WALDBAUER, G. P. (see Jeffords, M. R.) 1205
WALLER, DONALD M. Environmental determinants of outcrossing in *Impatiens capensis* (Balsaminaceae). 747
WARD, P. S. Genetic variation and population differentiation in the *Rhytidoponera impressa* group, a species complex of ponerine ants (Hymenoptera: Formicidae). 1060
WARNER, ROBERT R. AND STEVEN G. HOFFMAN. Local population size as a determinant of mating system and sexual composition in two tropical marine fishes (*Thalassoma* spp.). 508
WASSERMAN, M. AND H. R. KOEPFER. Does asymmetrical mating preference show the direction of evolution? 1116

WETHERINGTON, JEFFREY D. (see Snelson, Franklin F., Jr.) 308
WILBUR, HENRY M. AND JOSEPH TRAVIS. Theory of population genetics and evolutionary ecology: an introduction. (review) 1032
WINANS, GARY A. Geographic variation in the milkfish *Chanos chanos*. I. Biochemical evidence. 558
WOOD, DAVID AND JOHN M. RINGO. Male mating discrimination in *Drosophila melanogaster, D. simulans* and their hybrids. 320
WOOD, T. K. Divergence in the *Enchenopa binotata* Say complex (Homoptera: Membracidae) effected by host plant adaptation. 147
WRIGHT, SEWALL. Genic and organismic selection. 825
ZEVELOFF, SAMUEL I. AND MARK S. BOYCE. Parental investment and mating systems in mammals. 973
ZOUROS, E., SHIVA M. SINGH, AND HEATHER E. MILES. Growth rate in oysters: an overdominant phenotype and its possible explanations. 856
ZOUROS, E. AND C. J. D'ENTREMONT. Sexual isolation among populations of *Drosophila mojavensis*: response to pressure from a related species. 421

INDEX

UMI